

REMARKS

Applicants' representative thanks Examiners Shapiro and Vijay for the courteous and helpful personal interview conducted on August 27, 2004.

Claims 1-4, 9-12, 21-32, and 45-52 have been amended. Claims 1-52 are pending in the present application. Applicants reserve the right to pursue the original claims and other claims in this application and in other applications.

The drawings stand objected to for failing to show the feature "or by connecting two output terminals of plurality of signal lines to one of the signals lines together" in claims 1-4. Amended claims 1-4 delete the limitation and therefore, the objection should be withdrawn.

The specification stands objected to for failing to provide proper antecedent basis for the feature "or by connecting two output terminals of plurality of signal lines to one of the signals lines together" in claims 1-4. Amended claims 1-4 delete the limitation and therefore, the objection should be withdrawn.

Claims 1-16, 25-44 and 49-52 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Proebsting (U.S. Patent No. 5,952,948) in view of Akiyama (U.S. Patent No. 6,201,523) and Minami (U.S. Patent No. 5,454,013).

Proebsting's drive circuit comprises a digital-to-analog conversion circuit that divides a voltage using the resistances of a switch. The combined inventions of Proebsting's drive circuit in view of the sampling circuits disclosed by Akiyama or Minami generate a voltage directly on an output terminal. Neither Akiyama nor Minami discloses that a divided voltage, which divides by use of resistances of switches of the sampling circuit, is generated on the signal lines. In the case that a resistance of a sampling switch is not used, as described for example, in the specification at page 3, line 27 to page 5, line 27, there is a problem in that the current between the reference voltages is increased. Even if a voltage is divided by use of the switch of the sampling circuit, it is impossible to control a

divided voltage according to an image signal because neither Akiyama nor Minami discloses a technique/circuit for controlling a resistance value of the switch.

The present invention controls resistances of a digital-to-analog (D/A) conversion circuit (or a variable resistance circuit) and sampling circuit at the same time. This is a vast difference, as compared with the combined references. For example, Fig. 2 (of the present application) discloses circuitry which comprises digital to analog conversion circuits 21, 22 (which comprises thin-film transistors R1-R3 and control circuits 24, 25 for controlling thereof) and a sampling circuit 23 (which comprises a resistance value of thin-film transistor and a control circuit 26 for controlling thereof). Further, Fig. 4 and page 23, line 7 to page 24, line 13 discloses that, by using this circuit, a series resistor is controlled according to an image signal, the series resistor comprises resistance values R1-R3 of a D/A conversion circuit and a variable resistance circuit and resistance value of a sampling circuit. A divided voltage of two reference voltages are generated on a signal line and the divided voltage is controlled according to an image signal. The resistance value between two reference voltages can be increased by generating a divided voltage of two reference voltages on a signal line. Thereby a current between the reference voltages is decreased. Therefore, the present invention has a technical effect in that the power consumption is decreased.

Therefore, the present invention is different from the cited combination because the present invention comprises the D/A conversion circuit (or the variable resistance circuit) and the circuitry, which controls the resistances of the D/A conversion circuit (or the variable resistance circuit) and the sampling circuit at same time.

Proebsting, Akiyama, and Minami neither separately nor in combination suggest the limitations disclosed in claims 1-4 and 9-12.

Furthermore and with respect to claim 1, the combination of Proebsting, Akiyama, and Minami fails to disclose, teach, or suggest a drive circuit "wherein the sampling circuit comprises a plurality of switches each of which has an approximate same

resistance value” and “wherein a divided voltage point of the selected reference voltages is generated by a series resistance comprising a resistance value of the variable resistance circuit and a resistance value of the switches constituting the sampling circuit.” (emphasis added) Claims 3 and 4 are similar to claim 1.

With respect to claim 2, Proebsting, Akiyama, and Minami fail to disclose, teach, or suggest a drive circuit “wherein the sampling circuit comprises a plurality of switches each of which has an approximate same resistance value.” Nor do Proebsting, Akiyama, and Minami disclose, teach, or suggest “wherein a divided voltage point of the selected reference voltages is generated by a series resistance comprising a resistance value of the switching element group and a resistance value of the switches constituting the sampling circuit.” (emphasis added)

With respect to claim 9, Proebsting, Akiyama, and Minami fail to disclose, teach, or suggest a drive circuit “wherein the sampling circuit comprises a plurality of switches each of which has an approximate same resistance value.” Nor do Proebsting, Akiyama, and Minami disclose, teach, or suggest “wherein a divided voltage point of the selected two of the positive reference voltages or a divided voltage point of the selected two of the negative reference voltages is generated on the signal lines by a series resistance comprising a resistance value of the variable resistance circuit and a resistance value of the switch constituting the sampling circuit.” (emphasis added). Claims 11 and 12 are similar to claim 9.

With respect to claim 10, Proebsting, Akiyama, and Minami fail to disclose, teach, or suggest a drive circuit “wherein the sampling circuit comprises a plurality of switches each of which has an approximate same resistance value.” Nor do Proebsting, Akiyama, and Minami disclose, teach, or suggest “wherein a divided voltage point of the selected two of the positive reference voltages or a divided voltage point of the selected two of the negative reference voltages is generated on the signal lines by a series resistance comprising a resistance value of the first or the second switching element group and a resistance value of the switches constituting the sampling circuit.” (emphasis added)

Further, as noted in Applicants' prior amendment there is no motivation or suggestion to combine Proebsting, Akiyama, and Minami in the manner suggested by the Office Action. Therefore the Applicants respectfully submit that it would not be obvious to combine the references in the manner suggested by the Office Action.

Therefore, for at least the reasons stated above, the rejection of claims 1-4 and 9-12 respectfully should be withdrawn.

Claims 5-16, 25-44, and 49-52 depend directly or indirectly from claims 1-4 and 9-12 and incorporate all of the limitations thereof. Therefore, claims 5-16, 25-44, and 49-52 are allowable for at least the reasons stated above.

Claims 17-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Proebsting, Akiyama, and Minami in view of Jeong (U.S. Pat. No. 6,335, 721).

Claims 17-20 depend directly or indirectly from one of claims 1-4 and 9-12 and incorporate all of the limitations thereof. Therefore, claims 17-20 are allowable for at least the reasons stated above.

Claims 21-24 and 45-48 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Proebsting, Akiyama, and Minami in view of Nakamura (U.S. Pat. No. 6,335, 721).

Claims 21-24 and 45-48 depend directly or indirectly from one of claims 1-4 and 9-12 and incorporate all of the limitations thereof. Therefore, claims 21-24 and 45-48 are allowable for at least the reasons stated above.

Claims 21-32 and 45-52 have been amended to correct for idiomatic use of English. No new matter has been added.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is

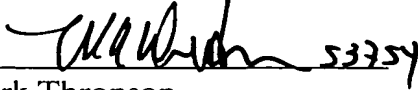
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respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

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Respectfully submitted,

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